

SECOND SERIES. No. 30.

MARCH, MDCCCLXVIII.

THE ZOOLOGIST:  
A Monthly Journal  
OF  
NATURAL HISTORY,  
FOR  
RECORDING FACTS AND ANECDOTES  
RELATING TO  
QUADRUPEDS, BIRDS, REPTILES, FISHES AND INSECTS.

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*On Certain Peculiarities in the Life-History of the Cuckoo, more especially with reference to the Colouring of its Eggs.*

By the Rev. A. C. SMITH.\*

"And listen to the vagrant cuckoo's tale."

I HAVE long had the intention to write some account of the cuckoo, as I intimated in one of my former papers on the "Ornithology of Wilts,"† because there is so much misconception abroad about the habits of that bird,‡ and because it is one of such extraordinary interest. It is even now a common popular belief, handed down from the time of Aristotle, that the cuckoo changes in the course of the summer into a hawk; while Pliny,§ who wrote on Natural History, gravely asserted (and that assertion is still upheld by many in these days), that the young cuckoo devours its foster brethren, and finally its most attentive foster parents: hence the Swedish proverb, "en otacksam gök,"|| implying "an ungrateful fellow." Even Linnæus gave credence to this absurd slander; and in our own country Shakspeare utters the same calumny. In the play of Henry IV. he makes that monarch exclaim:

"And being fed by us, you used us so  
As that ungentle gull, the cuckoo's bird  
Useth the sparrow: did oppress our nest:  
Grew by our feeding to so great a bulk  
That even our love durst not come near your sight  
For fear of swallowing: but with nimble wing,  
We were constrained for safety's sake to fly."

And again, in 'King Lear,' the fool is made to say

"The hedge sparrow fed the cuckoo so long  
That it had its head bit off by its young."

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\* [Read before the Wilts Archæological and Natural History Society, during the Annual Meeting at Salisbury, September 14th, 1865, and printed here as an introduction to a translation by the Rev. A. C. Smith of a paper by Dr. Baldamus, which will follow in course.]

† 'Wiltshire Magazine,' vol. ix. page 57.

‡ Among other errors abroad with regard to this ill-used bird, the English translators of the Bible included it in the list of unclean birds, which the children of Israel were forbidden to eat. (Levit. xi. 16, Deut. xiv. 15.) But Bochart, Gesenius and others have long since proved that not the cuckoo, but the sea-gull was the species intended. (Smith's 'Dictionary of the Bible.')

§ Pliny Hist. Nat. lib. 10, cap. 9.

|| "Gök," is no other than the old Saxon "geac," and the cuckoo is still often called "gowk" in some parts of England. (Bosworth's 'Anglo-Saxon Dictionary.')





Then again we are told that the fate of an individual for the current year depends on the direction in which he first hears the cry of the cuckoo in the spring: if it proceeds from the north, for instance, it is a lucky omen; but if from the south, it portends death.\* And again it is universally considered unlucky to be without money in your pocket, on first hearing the welcome notes of this bird.†

These are but samples of the many superstitions current in our day, and in our own county, with regard to the cuckoo;‡ and it is with the hope of substituting, in their stead, the very interesting and peculiar economy of its real life-history, that I venture to introduce so simple a subject.

And then again it so happens that I have for the last year or two given more attention than usual to the cuckoo, by reason of a very interesting paper on the subject written in German, which has been put into my hands for translation. The article to which I allude "On the strange Variation in the Eggs of the Cuckoo," § was written, so long as twelve years ago, by the celebrated ornithologist, Dr. Baldamus, of Stuttgart. The opinion which he then expressed, and the theory which he built upon the facts he had accumulated with reference to this subject, were published in the principal ornithological periodical of Germany, the 'Naumannia' for 1823, of which the same Dr. Baldamus is the talented editor. This opinion, however, has never been presented to the British public in an English dress, and consequently has never met with the attention in England which it deserves: moreover, the rarity of meeting with the book which contains it, as well as the lengthy article, and scientific German, in which the author has developed his facts and his opinion, have helped

\* Lloyd's 'Scandinavian Adventures,' vol. ii. p. 347.

† 'Naturalist' for 1852, p. 841.

‡ As the story of hedging in the cuckoo, and so securing the permanence of spring, has been attempted to be affiliated on the moonrakers of Wilts, I must, in common honesty, quote from the veracious chronicle entitled, 'The Merry Tales of the Wise Men of Gotham,' in which the following anecdote occurs:—"On a time the men of Gotham would have pinned in the cuckoo, whereby she should sing all the year; and in the midst of the town they had a hedge made, round in compass, and they had got a cuckoo, and put her into it, and said, 'Sing here, and you shall lack neither meat nor drink all the year.' The cuckoo, when she perceived herself encompassed within the hedge, flew away. 'A vengeance on her,' said the wise men; 'we made not our hedge high enough.'" ('Sharpe's Magazine,' vol. x. p. 6.)

§ "Neue Beiträge zur Fortpflanzungsgeschichte des Europäischen Kukkuks (*Cuculus canorus*)," von E. Baldamus. ('Naumannia,' 1853, pp. 307—326).



to deter the general inquirer from entering upon a question which to the ordinary observer will be found to be of considerable interest, and to the out-door naturalist is worthy of most patient attention, as well as diligent investigation; and yet which, notwithstanding its deep interest, and curious and extraordinary as it is, has probably never yet come before the notice (I may almost venture to say) of any one in this Society.

Having thus introduced Dr. Baldamus and his paper, so that I need not hereafter break the thread of my story, I will begin by saying a few words upon other peculiarities of the cuckoo, before I come to the chief subject of this article, the extraordinary colouring of its eggs.

I have already, in my last paper on the "Ornithology of Wilts," given some general account of the bird, so that I need now only briefly recapitulate some of its chief characteristics. Thus I will remind my readers that it belongs to the large order of perching birds, and to the tribe of climbers; that it is migratory, arriving in this country in April, and leaving in July; that its general appearance at a short distance often leads the casual observer to mistake it for a hawk, though a single glance at the small weak legs and feet, and the straight powerless slender beak, would at once undeceive on a nearer examination; that, with the exception of the honey buzzard (*Buteo apivorus*), it is the largest of British insectivorous birds;\* for its food consists of insects of many sorts, but more particularly of the several species of hairy caterpillars which abound in the early summer, and which long-haired caterpillars are rejected by almost all birds, with the exception of the cuckoo; so that it has been thought by some, that the reason why that bird leaves the country so early is the failure, by the middle of July, of its favourite food.† I may observe, too, that it is the male bird alone which gives utterance to the peculiar note which we hail so gladly as an announcement of spring, though, among other popular errors, the following old couplet attributes the song to the female:‡—

"The cuckoo is a pretty bird, and sings as *she* flies,  
She brings us good tidings, and tells us no lies."

Possibly, however, this may be only the indiscriminate use of the masculine and feminine pronoun so common in Wiltshire: I am

\* Jesse's 'Gleanings of Natural History,' p. 125.

† Wood's 'Illustrated Natural History,' vol. ii. p. 574.

‡ 'Naturalist' for 1852, p. 84.

bound, too, in honesty to add, that the well-known cry of the cuckoo has been declared by some naturalists (though I think erroneously) to be common to both sexes.\* Lastly, I will repeat that the female has that strange peculiarity of depositing her eggs singly in the nests of other species, which she selects as suitable foster-parents to her own young,—a peculiarity not shared in by any others of our British birds, though by no means unknown among the feathered tribes of other countries, the cowbird, for example, of America,† which belongs to the starling tribe, several species of the African cuckoos and others. It is from this last eccentricity of conduct that so many strange and unlooked for habits of the cuckoo take their rise: let us examine them one by one; but first let me earnestly protest against the unmeaning outcry and charge of unnatural, unfeeling conduct often preferred against the cuckoo,‡ as if she did not follow out the instincts of her nature as truly as every other bird, and as if there was not *some* good and sufficient reason (though we may be unable to fathom it) why some species delegate the care of their young to other birds: rather, I think, should we admire the wonderful instinct which leads them to select, as foster-parents, those species only whose feeding is similar to their own, and so would provide their young with suitable nourishment; and that dexterity which enables them to insert their eggs amongst others, just at the right moment when the foster-parent is preparing to sit. §

Now, first I beg to state without hesitation that *never*, by any possibility, does our British cuckoo either build a nest of her own, or incubate her eggs on the ground. We hear constant tales of such occurrences: every year our periodicals and newspapers contain statements of such marvellous incidents, which would be marvellous indeed if true; but I venture to assert most positively, without fear of contradiction, that all such stories have originated from some error; and either the common nightjar,|| of nearly the same size, fluttering away from her marbled eggs at the root of an old oak, or some other bird, has been mistaken for the cuckoo, which never, in any single instance, has been known to sit on her own eggs.

\* 'Magazine Nat. Hist.' vol. viii. pp. 329—382. 'Naturalist' for 1851, pp. 11, 172.

† Wilson's 'American Ornithology,' vol. ii. p. 162.

‡ Bishop Stanley's 'Familiar History of Birds,' vol. ii. p. 80.

§ Gilbert White's 'Natural History of Selborne,' letter iv.

|| Montagu's 'Supplement to Ornithological Dictionary,' vol. ii. Rennie's 'Architecture of Birds,' p. 380. Gilbert White's 'Selborne,' letter vii.

The cuckoo then, houseless and vagabond though she is, and the veritable "gipsy of the feathered tribes," as she has been styled, soon after her arrival here in the spring, begins to busy herself no less than other birds, in making preparations for her future progeny; but instead of preparing a nest as other birds do, her occupation is to scour the hedgerows and plantations, and watch the busy nest-makers with more eager eye than any schoolboy; \* observing day by day the progress made, and anxiously selecting those which may be most convenient for her purpose. Into these nests it is not her habit to intrude herself for the purpose of laying her egg, as all other birds do; indeed, from her superior size in proportion to the nest, such a course would be generally impossible; but she lays her egg on the ground, and then she takes it in her beak,† and gently deposits it in the nest she has chosen. And that the cuckoo does thus avail itself of her beak to place her eggs in nests which otherwise would have been inaccessible to her, is not only *a priori* established from those cases where no other means were possible, as in certain domed nests with entrance-holes at the side only, or those which are laid in the holes of trees, as for instance those of the wren, the redstart and others; but we have a very interesting account, from a charcoal burner in the Forest of Thüringer, who happened to be in his rude woodman's hut in the forest when a cuckoo (which he had long observed flying about in the neighbourhood) flew into the hut, not perceiving the owner, perched upon a bench near the entrance, laid an egg, then seized it in her beak and placed it in a wren's nest, which was built against the inner side of the hut, while the man looked on in amazement, and soon after related the "wonder" to the German naturalist who recorded the event. But I believe this to be her invariable method, whether the small nest of the foster-parent be accessible to her or no: and then, again, this habit of taking the egg in her beak, and so depositing it in the chosen nest, considered in conjunction with the similarity of her egg to that of several species of small birds as detailed farther on, will readily account for the frequent assertion on the part of eye-witnesses of the cuckoo eating the eggs of small birds, which they triumphantly declare they have themselves seen between the mandibles of that bird's beak. ‡

\* Rennie's 'Architecture of Birds,' p. 374.

† 'Zoologist,' 3145, 7757, 7935, 8165. Hewitson's 'Eggs of British Birds,' vol. i. p. 205. Temminck's 'Manual d'Ornithologie,' vol. i. p. 384. Rennie's 'Architecture of Birds,' p. 378.

‡ 'Naturalist' for 1851, p. 162; for 1852, pp. 33, 233.



It is not until after an interval of several days that the cuckoo lays another egg in the same manner, and then deposits it in another nest which she has previously selected; and so on till her whole complement of four or five or six eggs is laid;\* but never on any occasion does she lay two eggs in the same nest; so that, although it is true two cuckoo's eggs have been sometimes found in the same nest, these were without doubt from different parent birds, and by no means the eggs of the same individual.†

But now if the egg of the cuckoo was at all proportioned to the size of the bird, it would not only at once attract the attention and alarm of the foster-parent, but it would be impossible for so diminutive a nurse to brood over and hatch it; and therefore Nature, who never does anything by halves, but provides for every emergency, has given a strange disproportion in the egg of the bird to the size of the parent cuckoo (the egg of the cuckoo being no larger than that of the lark, ‡ though the relative size of the two birds is as four to one)—a disproportion, however, the necessity for which is most apparent, if the little foster-parent is to be duped into believing the egg of the intruder to be her own.

The cuckoo, then, having laid her eggs of comparatively diminutive size, and entrusted each to the charge of carefully selected foster-parents, is by many supposed to leave them to their fate, and to take no farther interest in the matter.§ But this does not seem to be the case.|| On the contrary (and for this I have the high authority of Dr. Gray of the British Museum), the cuckoo has been observed to frequent, the neighbourhood, and watch near the nest during the whole period of incubation; and then, when the eggs are hatched, it is the parent cuckoo, ¶ and not the young one (as Dr. Jenner supposed,\*\* and so led many into error) which generally removes from the nest the young

\* Colonel Montagu dissected a cuckoo which had in her four or five eggs. (Ornith. Dict.). Mr. Rennie thinks it lays a second time. Blumenbach says she lays six eggs in the spring *from time to time*. Jessie's 'Gleanings in Natural History,' p. 125. 'Naturalist' for 1851, p. 162.

† 'Zoologist,' 8823, 9325. Yarrell's 'British Birds,' vol. ii. p. 192. Montagu's 'Ornithological Dictionary,' Introduction, p. ix.

‡ Yarrell *in loco*, vol. ii. p. 191. Bewick, vol. i. p. 108.

§ 'Zoologist,' 1638.

|| 'Ibis,' vol. iv. p. 384. Wood's 'Illustrated Natural History,' vol. ii. p. 572.

¶ 'Zoologist,' 2589, 2603, 4895, 6676, 8166, 8195, 8235, 8681. Jesse's 'Gleanings in Natural History,' p. 123.

\*\* 'Philosophical Transactions,' vol. lxxviii.

cuckoo's foster brethren, and any unhatched eggs there may be,—a fact which my friend, the late lamented naturalist, Mr. Waterton, proved\* to be quite impossible for any newly-hatched bird, however precocious that bird might be.

Whether or no this is the last office which the parent cuckoo undertakes for its young, I will not venture to affirm: though it is the opinion of some experienced naturalists that she really feels an anxiety for her young not less than that shown by other birds;† while others maintain that she has occasionally, though very exceptionally, been known to feed her own young, of which several most convincing proofs have been adduced;‡ and others again declare that she sometimes even takes the young under her protection, when they are sufficiently fledged to leave the nest.§ But be that as it may, towards the end of July the old birds are preparing to migrate, and the male has already changed his note to that stammering repetition of the first syllable which (as all observers know) heralds the cessation of his so-called song, and which an old writer, John Hayward, who flourished about A. D. 1580, has described in the following quaint but very graphic rhymes.

“ In April the cuckoo can sing her song by rote.  
In June oft'times she cannot sing a note.  
At first, koo ; koo ; koo ; sings till can she do  
At last, kooke, kooke, kooke ; six kookes to one koo.”

By the beginning of August, then, the parent cuckoos are gone southwards, but the young cuckoo is notoriously a tedious nursling, and indeed, having to grow from the inmate of a very small eggshell to a bird of considerable dimensions, requires time for such development, and taxes, to a very large extent, the powers as well as the assiduity of its foster-parents: by degrees this overgrown infant not only fills the little nest which was never meant for such a monster, but is forced to vacate it, and sits perched on the edge, while the foster-parents, unable to reach up to it from below, alight on its back in order to feed it.||

\* ‘Essays in Natural History,’ first series, p. 228.

† Wood’s ‘Illustrated Natural History,’ vol. ii. p. 572. ‘Naturalist’ for 1851, p. 67, 162.

‡ ‘Naturalist’ for 1851, p. 11.

§ Yarrell, vol. ii. p. 572. ‘Naturalist’ for 1851, p. 233.

|| ‘Gardener’s Chronicle,’ 1851, p. 469. ‘Mag. Nat. Hist.’ vol. ix. p. 638, ‘Naturalist,’ 851, p. 132, 1852, p. 33.

It is at this period of its existence that the young cuckoo is said to possess, or to acquire for a time, the note of its foster-parents,\* whatever it may happen to be; but this point in its history requires corroboration, as, though asserted by many, it has never yet been satisfactorily settled. And then again, when they have at length attained their full size, the young cuckoos, though left to their own devices, and without their elders for their guides, as all other migratory birds have, follow towards the end of September, in the track of their parents who have gone long before, and migrate to a warmer climate: though what instinct teaches them when to go, or whither to bend their course, who shall say? Indeed, to my mind, this is one of the most astonishing points in their life-history which we have now touched upon.

And now I come to the most remarkable peculiarity of all: and indeed amongst these so many anomalies which we have seen to belong to this extraordinary bird (and the more one studies its habits the more numerous, and the more apparent do they become), there is nothing so strange, or indeed so startling, as the opinion put forth, as I said just now, in Germany by Dr. Baldamus, and afterwards followed up and demonstrated by proofs of apparently the most satisfactory character, on the part of himself and his friends,—that the cuckoo, while she lays her eggs singly in the nests of other birds, *is able to assimilate them in colour to the eggs of those birds whose nests she selects*: † and thus it is by no means an uncommon occurrence to see the egg of the cuckoo taken from a hedgesparrow's nest, partaking of a greenish blue tinge; another from the nest of a robin of a reddish hue; another from a pipit's nest of a brownish colour; and so on through the twenty or thirty species, in whose nests the egg of the cuckoo has been found. Feeling keenly, as I do, the startling nature of this bold statement, and the scepticism it is likely to call forth, I will not linger over it with any comments of my own, but proceed at once to give a short *resumé* of the article in question.

Dr. Baldamus begins his paper by calling attention to the great variety in colouring as well as in marking in a collection of cuckoo's eggs, and the astonishing resemblance these eggs severally bear to the eggs of a variety of small birds usually chosen as the foster-parents of cuckoos,—a fact which he says was well known to the great ornithologists and oologists of Germany, including Naumann, Thiënnemann,

\* Thompson's 'Natural History of Ireland,' vol. 1, p. 361.

† 'Zoologist,' 3988.



Brehm, Gloger, von Homeyer and others, and I may add that this point was equally well known to our British ornithologists as well.\* But Dr. Baldamus seems to have been the first to suspect that at the root of this striking phenomenon there was a fixed law, perhaps a law which might be discoverable; and his suspicions in this direction having been aroused, he proceeded to pay diligent attention to the subject. To this end he not only made most careful personal observations, but, by means of oological correspondents in various parts of Germany, collected a large series of facts bearing upon the matter, which were convincing to his own mind,—convictions which seem to have been shared in by many of the leading ornithologists of Germany. I will not weary the patience of members of this Society by taking them through the several instances which Dr. Baldamus details; but pass on at once to the results he arrived at, merely remarking, by the way, that he followed up his investigations with such earnest zeal, that when he wrote his paper he had before him no less than one hundred cuckoo's eggs, special care being taken to ascertain accurately from the nest of what particular species every one of these eggs was taken.

Now the first thing which Dr. Baldamus established to his own satisfaction, by means of these repeated observations, was, that the cuckoo lays its eggs in the nests of no less than thirty-seven species, including not only every species of chat, warbler, wagtail, pipit and lark, but even exceptionally certain of the grain-eating finches and buntings; these exceptions being doubtless in cases only where the cuckoo was deprived, by some accident, of the nest she had selected for her egg, and which when ready to be laid she was obliged to consign to the care of the best nurse she could find at short notice. To this seeming inconsistency on the part of the parent bird, I may, however, add that the grain-eating species have been known to bring up young cuckoos; and the explanation is, that even the hard-billed birds are accustomed to feed their young, at any rate at first, with insects.

From the thirty-seven species alluded to above, which have been ascertained to act as foster-parents of the young cuckoo, Dr. Baldamus enumerates no less than twenty-eight, to whose several eggs he affirms the cuckoo will assimilate her egg in colouring; and this he then proceeds to prove from the specimens lying before him, and which

\* Wood's 'Illustrated Natural History,' vol. ii. p. 572.

(as I before remarked) are all carefully authenticated, in regard to the nests from which they were taken: all these specimens he examines singly, and describes their colouring as nearly all partaking, in a greater or less degree, of the character, ground colour, and markings of the eggs of the species in whose nests they were severally laid; while some are so extremely similar that but for the *grain*\* or texture of the shell and certain characteristic specks, it would be difficult to distinguish them apart. The exceptions to this general rule are those laid in the nests of corn-eating species, and our author adds that it would be extraordinary indeed if the cuckoo's eggs should resemble the eggs of these exceptional and never-intended foster-parents.

"The fact then," says Dr. Baldamus, "is quite established and beyond all doubt, that there are cuckoo's eggs which, both in colour and in marking, are very like the eggs of those species in whose nests they are generally laid;" and then he proceeds to argue that Nature, who never trifles nor acts without purpose, has plainly given the parent cuckoo this faculty, in order to facilitate the continuance of the species under peculiar conditions; for (he well remarks) had this not been so, we are driven to the alternative that the warblers and others, which generally recognize so easily all strange eggs, casting them out of the nest,† or else deserting it, in regard to the cuckoo's eggs are quite blind, and cannot recognize the red eggs among their green clutches,‡ and *vice versa*. "Therefore," continues our author, "I do not hesitate to set forth, as a law of Nature, that the eggs of the cuckoo are in a very considerable degree coloured and marked, like the eggs of those birds in whose nests they are about to be laid, in order that they might the less easily be recognized by the foster-parents, as substituted." §

\* "Das Korn:" the German word exactly answering to our English idiom "grain." The grain or texture of the shell is too often overlooked by oologists, but amongst the very similar eggs of some species, as more particularly among the duck tribe, this is one very important means of identification, more especially when the egg is placed under a low magnifying power.

† Montagu's 'Ornithological Dictionary,' Introduction, p. iv.

‡ Or "loiters" as our Wiltshire rustics say: "gelege" in German.

§ It is worthy of remark that, whereas it has been often asserted that the egg of the cuckoo is by no means found in any proportion to the number of old birds (for it is not a rare species), and every female would seem to lay annually from four to six eggs, the difficulty is at once disposed of, if Dr. Baldamus' theory is correct, inasmuch as the great similarity of the egg of the cuckoo to those of the nest in which it is placed, may deceive human eyes no less than those of the foster-parents.

The next question examined is, "whether the same hen cuckoo lays eggs of the same colour and markings only, and so is she limited to the nests of but one species? or else, does the same individual lay eggs of different colour and markings, according to the character of the eggs amongst which her own will be intruded?" Both these theories have their advocates; those in favour of the last view advancing the hypothesis that the sight of the eggs lying in the nest has such an influence on the hen which is just about to lay, that the egg which is ready to be laid assumes the colour and markings of those before her, and for this physiological reasons are adduced, and analogies, not forgetting the well-known and successful experiments of the patriarch Jacob.\* But Dr. Baldamus rejects this opinion, and contends for the other view (*viz.* that the same cuckoo lays eggs of one colour and markings only, and so is limited to the nests of but one species): and this he proves by personal experience and observation; by the fact that he has found two differently marked cuckoo's eggs in one nest; that he has also found similarly marked eggs laid by one and the same cuckoo, in the nests of different species; and that he has found cuckoo's eggs (though rarely) in such nests as have not yet received any eggs of the owner,† in which case the cuckoo is without any pattern of a fixed form of colour for its egg. All these points in the argument are very carefully worked out at considerable length, and a large array of proofs and instances brought forward to support his views; and then our author deduces the conclusion that all experience hitherto known declares in favour of his assertion "that every cuckoo lays eggs of one colouring only, and consequently (as a general rule) lays only in the nest of one species;" and he sums up his argument as follows:—"Every pair or rather each individual cuckoo is endowed with the instinct to lay its eggs in the nests of some one species of birds, which are fit to act the part of foster-parents; so in order that these latter may the less readily observe the strange egg, it is found to be of similar colouring to their own; and for the same reasons it is also so disproportionably small. Then every pair of cuckoos seeks its old district, or that spot where it breeds, just as all other birds do.‡ Here it generally finds those species of insectivorous birds which it requires for its peculiar circumstances: but assuredly they are not always in the necessary numbers, or perhaps they may for some cause

\* Genesis, chap. xxx. 37, *et seq.*

† This is corroborated in the 'Naturalist' for 1852, p. 33.

‡ Blyth's edition of White's 'Selborne,' p. 78.



be breeding earlier or later than its six to eight weeks' time for laying\* lasts: it will therefore be unable to find for each of its eggs a fitting nest of that species to which it was prepared to entrust it, and to which it was accustomed; and so it finds itself obliged to introduce one and another egg into the nests of some other species, if haply by good chance it can do so.† Thus, then, it comes to pass that there are, and from the nature of the circumstances there must be, proportionably *many* exceptions to the rule. Thus, too, it comes to pass that by far the greater number of cuckoo's eggs bear the type of the eggs of the whitethroat (*Sylvia cinerea*) and of the pied wagtail (*Motacilla Yarrellii*), the most common foster-parents of the young cuckoo;‡ and perhaps in some localities of the meadow pipit (*Anthus pratensis*), the hedge accentor (*Accentor modularis*), and of the reed wren (*Sylvia arundinacea*); and that, on that account, eggs of such colouring form the most frequent exceptions,—that is to say, are most frequently found in the nests of other species. Thus, too, lastly, it comes to pass that these two above-named prevailing colours of the cuckoo's eggs are spread over *most localities*, whilst at the same time they also appear, *almost everywhere*, as exceptions in other nests. For the diffusion of these two species (the common whitethroat and the pied wagtail) is very extensive, and their haunts usually offer to the cuckoo also the requirements of its existence: it is therefore not without signification that one seldom finds in their nests cuckoo's eggs of other colours, but one does very frequently find, in the nests of other birds, cuckoo's eggs of their type.

I will just quote, before I take leave of Dr. Baldamus, the three following deductions, which he draws from his observations, and with which he concludes his paper.

\* "Legezeit" is the concise German word, for which we have no English equivalent.

† The cuckoo, however, alone of British birds, is generally supposed to have the faculty of retaining her egg in the ovary, after it is arrived at maturity, for a limited period of time. (Montagu's 'Ornith. Dict.' Introduction to vol. i. p. 8. Jesse's 'Gleanings in Nat. Hist.' vol. ii. p. 125.) If this be correct, it will account for the egg laid by the cuckoo as it fell to the ground after it was shot, recorded by Mr. S. S. Allen, ('Ibis,' vol. v. p. 358), and by my friend Mr. Chambers ('Ibis,' vol. v. p. 475). See also M. Vaillant's account of the African cuckoo shot by himself, and his faithful attendant, the Hottentot Klaas, and the frequent occurrence of the egg laid by the cuckoo as she fell wounded from the tree. (Rennie's 'Architecture of Birds,' p. 378.)

‡ The pied wagtail, the meadow pipit, and the hedge warbler, are perhaps most frequently chosen as the foster-parents in this country.

I. "Nature must have some special motive in the circumstances above detailed, so many, so connected together, but so peculiar.

II. That motive is plainly to be seen; *viz.* that by means of certain laws originally made she may ensure and facilitate the preservation of a species otherwise much exposed to danger.

III. She attains this end by a very simple method: in that she invests every hen cuckoo with the faculty of laying eggs coloured like the eggs of the bird of whose nest she prefers to make use, according to the locality; or in other words, every hen cuckoo lays eggs only of a fixed colour, corresponding with the eggs of that warbler in whose nest she lays them (as a general rule); and she only lays in other nests when, at the time for her laying, one of the species, of her own peculiar type, as we may say, which is fitted for her in every particular, is not ready."

Such is the very interesting and well-sustained argument of Dr. Baldamus: and, however new and startling his hypothesis, however unprecedented his conclusions, yet he supports his argument with such a battery of facts that his position seems almost impregnable. Facts are proverbially stubborn things, and not to be overthrown by opinions held only from the force of habit and not from conviction of their truth. At the same time I am far from advocating any acceptance of conclusions until we have tried them and ascertained their value. And so I would urge upon every out-door observer (and everybody who lives in the country ought to be an out-door observer) to assist in investigating this curious question, and I would invite them to communicate to this Natural History Society any discoveries they may make, or any well-ascertained facts they may elicit. We have a new point before us in the history of the cuckoo suggested for our consideration: we all hear the cuckoo's cry every spring all around us; we know then that the bird is with us, laying its eggs in our neighbourhood: it requires only diligence and observation and patience to make us acquainted with its habits. But yet again I would repeat the caution against rushing too quickly to conclusions: it is not an isolated fact here or there that would warrant any inference; it is only by careful comparison of many well-authenticated particulars that we are able to arrive at any satisfactory decision; while, on the other hand, the question before us is not to be set on one side as the dream of an enthusiast, or the fancy of a superficial naturalist. It is deliberately proposed by a leading ornithologist, of mature judgment and deep scientific attainments: it is the result, moreover, of patient

research, and a long course of inquiry among men well calculated to form a right conclusion. Let me advise, then, that while we keep our eyes open in order to see for ourselves, and investigate the mystery, we do not turn scornfully away from propositions which amaze, but respectfully listen to the opinions of those who have acted as our pioneers on this unknown track, and who have been busy in searching for the truth upon a point which even now, at the end of twelve long years, comes to us as a startling novelty.

ALFRED CHARLES SMITH.

Yatesbury Rectory, Calne.

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*Notes on Aphides.* By F. WALKER, Esq., F.L.S.

(Continued from S. S. 1059.)

Genus 3. RHOPALOSIPHUM, Koch.

Typical species, *Aphis Persicæ*, Sulzer.—Front flat between the antennæ, which are remote from each other at the base. Nectaries clavate. In other characters like Siphonophora.

- A. Nectaries twice the length of the tail. . . . . 1. *Lactucæ*.
- AA. Nectaries thrice the length of the tail.
- A. Viviparous winged female wholly luteous. . . . . 2. *Berberidis*.
- AA. Viviparous winged female with the head and thorax black.
- A. Viviparous apterous female green or luteous. Antennæ pale.
- a. Viviparous winged female with the frontal tubercle gibbous on the inner side. Abdomen green or reddish, excepting the black spots. 3. *Persicæ*.
- aa. Viviparous winged female with the frontal tubercle not gibbous on the inner side. Abdomen luteous, excepting the brown spots. . . . . 4. *Ligustri*.
- AA. Viviparous apterous female olive-green. Antennæ brownish black. . . . . 5. *Nymphææ*.

The genus *Rhopalosiphum* is restricted by Passerini to the preceding five species, which belong to not less than four genera.

1. *R. Lactucæ*, Kalténbach.—Kalténbach mentions that his *Aphis Lactucæ* is erroneously cited by Koch as identical with *Siphonophora Lactucæ*. Passerini has observed it on *Picris hieracioides* and on *Cichorium endiva*. Its oviparous form, so far as is known, appears only on species of *Ribes*, where its occurrence is very irregular. A wingless viviparous female, which I have described as a variety of



R. Lactuæ with cylindrical nectaries, is supposed by Passerini to be Siphonophora Lactuæ.

2. *R. Berberidis*, Kaltenbach.—It is very remote from R. Lactuæ in structure and in habits, and forms a new genus, which may be thus briefly described:—

Genus LIOSOMAPHIS.

*Fœmina vivipara aptera.*

Corpus ellipticum, vix convexum. Frons plana. Antennæ corporis dimidio vix breviores. Nectaria subclavata, subscendentes, corpore quintuplo breviores. Cauda nectariis plus duplo brevior. Pedes graciles, breviusculi.

*The wingless viviparous female.*

Body rather flat, increasing in breadth from the head to two-thirds of the length, rounded from thence to the tip of the abdomen. Head flat in front. Antennæ nearly half the length of the body. Nectaries subclavate, slightly curved upward, about one-fifth of the length of the body. Tail distinct, less than half the length of the nectaries. Legs slender, rather short.

3. *R. Persicæ*, Sulzer.—This species was first noticed by Sulzer in his *Abgekürzte Geschichte der Insecten*. Passerini has identified it with *Aphis Dianthi*, *Schrank*. The reference to *Aphis Persicæ*, *Kaltenbach*, as a synonym of *A. Persicæ*, *Sulzer*, in *Ann. Nat. Hist. Ser. 2. v. 72*, is erroneous. Morren described and illustrated fully the anatomical structure of this species, and named it *A. Persicæ*, supposing that it had not been recorded. His conclusion that it migrated from another country and radiated over Belgium appears to be wrong. The winged female appeared in countless millions through various parts of Belgium from the 28th of September to the 15th of October, in 1834. Morren remarks that the winter of 1833-34, was extremely mild, and that the next summer was excessively hot and dry, there being entire months without rain. These seasons were both very favourable to the increase of Aphides. The first season enabled them to multiply incessantly without the renovation of the egg state. The next season was equally favourable for increase, as wet is very destructive to Aphides. The hot weather was also the means of the appearance of the winged form, so that, while it shrivelled the sustenance of the Aphides, it preserved their lives by enabling them to

remove to fresh food. Morren believed that this occasion was the first appearance of *A. Persicæ* in Belgium, and that all its swarms migrated from one spot. It feeds on a great variety of plants, peach leaves are not its usual food, and it abounds in Europe generally. A long continuance of hot dry weather much develops the winged viviparous form of Aphides, and the time of this result varies locally; the swarms that appeared successively here and there throughout Belgium may not have been really migratory. Their numbers, which are said to have darkened the light of day and to have hidden the walls of houses, seem to prove that they did not all radiate from one focus. Morren suggests that, as it first appeared very near the west coast, it may have come from England, and cites *Schizoneura lanigera* as an example of migration. The latter, of which one individual has been calculated to multiply to a quintillion and to thirty times that number of eggs in one year, is stated to have come from N. America to England, and to have spread thence over Europe, but there is no proof that it has migrated by long flights. Morren's opinion that in Aphides generally the viviparous *Aphis* is winged appears to be incorrect. He cites *A. Persicæ* as an exception to this rule. The fact that a cold atmosphere is the means of developing the perfect form of Aphides was noticed in 1802 by Mr. Curtis. Passerini suggests that an artificial atmosphere may be the means of continuing the preparatory state *ad infinitum*, and of thus annulling the ultimate condition. At the end of September, in 1866, the winged female of *A. Persicæ* appeared in abundance on the peach leaves at Wanstead. It is very different from the common *Aphis* of the peach.

4. *R. Ligustri*, Kalténbach.—This species is widely different in form from the type of *Rhopalosiphum*, and may be included in *Liosomaphis*, with *L. Berberidis*, till it is established as a new genus.

5. *R. Nymphææ*, Linn.—This and some others belong to a group that is quite distinct from *R. Lactuæ* and from *R. Persicæ*, and is more nearly allied to the limited genus *Aphis*. Passerini, in his 'Gli Afidi,' makes *R. Nymphææ* the type of his genus *Siphocoryne*, but in his 'Aphididæ Italicæ,' he cites *A. Xylostei* as the type of that genus.

#### Genus 4. MYZUS, *Passerini*.

Antennæ remote from each other at the base, seated on a short tubercle; first joint not dentate. Nectaries cylindrical, longer than the tail. In other characters like the preceding genera.

Typical species, *Aphis Cerasi*, Fabr.

- A. Viviparous apterous female wholly black or brown.
- A. Tail more or less long, never very small.
- A. Nectaries long, cylindrical, more than twice longer than the tail. 1. *Cerasi*.
- AA. Nectaries short, a little thicker at the base, hardly longer than the tail. 2. *Pyrarius*.
- AA. Tail very small or none.
- A. Viviparous winged female with a reddish abdomen. Stigma and veins whitish. 3. *Persicæ*.
- AA. Viviparous winged female with a black abdomen. Stigma and veins brown.
- a. Body black, shining. Stigma black. 4. *Lychnidis*.
- aa. Body brown, dull. Stigma pale, or slightly brown. 5. *Oxyacanthæ*.
- AA. Viviparous apterous female never black or brown.
- A. Apterous female with a rust-coloured abdomen and with a large black dorsal spot. 6. *Tanacetii*.
- AA. Apterous female wholly green, or whitish green, or luteous lemon-colour, or ochraceous.
- A. Viviparous winged female with a brown abdomen. Apterous female whitish green. 7. *Plantagineus*.
- AA. Viviparous winged female with the abdomen never brown.
- a. Apterous viviparous tuberculate-setose above. Bristles capitate. 8. *tetrarhoda*.
- aa. Apterous viviparous female not tuberculate-setose.
- \* Antennæ longer than the body. 9. *Ribis*.
- \*\* Antennæ shorter or not longer than the body.
- † Body orange-colour. 10. *Asclepiadis*.
- †† Viviparous apterous female green.
- ‡ Nectaries very long. Stigma gray. 11. *Lythri*.
- ‡‡ Nectaries moderately long. Stigma greenish. 12. *Mahaleb*.

1. *M. Cerasi*, Fabr.—In this vicinity, during 1866, *M. Cerasi* appeared in June and passed away in August, and reappeared in the middle part of October, when the male, which has not yet been described, was of frequent occurrence. The latter month is generally the season for the second especial swarming of Aphides, and is the time in which they should be more particularly observed, in order to determine what are permanent species and what are annual or apparent species, or are modified by the agency of the plants on which they feed and pass away without attaining the last state, and in following years are replaced by other forms whose peculiarities are also owing to their food and to local circumstances.

2. *M. Pyrarius*, Passerini.—Not recorded as British.

3. *M. Persicæ*, Passerini.—The characters by which Passerini distinguishes this species from *Aphis Persicæ*, Fonscolombe, will be noticed in the sequel.



4. *M. Lychnidis*, Koch.—Passerini excludes the synonyms which Koch has recorded of this species, and observes that the *Aphis Lychnidis* of authors has perhaps been sometimes confused with it, and that it differs from *A. Lychnidis*, *Kaltenbach*, not only in its generic characters but also in the wholly black colour of the winged viviparous female. This is also a matter for examination. The comparative length of the nectaries appears to be uncertain as a specific character.

5. *M. Oxyacanthæ*, Koch.—Passerini observes that this is not the *Aphis Oxyacanthæ* of Schrank.

6. *M. Tanaceti*, Linn.—Passerini remarks that this is the *Siphonophora Tanaceti* of Koch, and partly the species which I have described as *Aphis Absinthii*, but I believe that all the specimens which I have noticed of the latter species are quite distinct from the *S. Tanaceti* of Koch.

7. *M. Plantagineus*, Passerini.—On *Plantago media*. Not recorded as British.

8. *M. tetrarhoda*. Wlk.—*Siphonophora Rosarum*, Koch.

9. *M. Ribis*, Linn.

10. *M. Asclepiadis*, Passerini.—Not recorded as British.

11. *M. Lythri*, Schrank.

12. *M. Mahaleb*, Fonscolombe.—Passerini conjectures that I have combined this species with *Phorodon Humuli*, from which it differs in the frontal tubercle not being dentate. He observes that the viviparous winged females appear suddenly on *Prunus Mahaleb* in October, and inquires "from whence do they come?"

Of the preceding twelve species *Plantagineus*, *Tetrarhoda*, *Ribis*, *Asclepiadis*, *Lythri* and *Mahaleb* should be separated from *Myzus*, and it is doubtful whether *Oxyacanthæ* and *Tanaceti* belong to it. *Tetrarhoda* and *Ribis* are much more allied to the genus *Phorodon*.

#### Genus 5. HYALOPTERUS, Koch.

A. Viviparous apterous female more or less powdered with white. Abdomen of the viviparous winged female green, with three deeper green stripes.

A. Apterous viviparous female thickly powdered. Tail green. . . . 1. *Pruni*.

AA. Apterous viviparous female slightly powdered. Tail brown. . . . 2. *Arundinis*.

AA. Apterous viviparous female never powdered. Abdomen of the viviparous winged female luteous-green, most often with dorsal black bands and with marginal black points. . . . . 3. *trirhoda*.

1. *H. Pruni*, Fabr.

2. *H. Arundinis*, Fabr.

I have described these as one species, and I believe that the *Aphis* on *Elymus Arundinis* and on *Salsola Kali*, which I have named *A. Arundinis*, is not the *Arundinis* of Fabricius. Passerini makes no mention of *Aphis Vitis* among the Italian *Aphididæ*, and his observation of the occurrence of *H. Pruni* on *Vitis vinifera* suggests the probability that *Pruni* and *Vitis* are identical.

3. *H. tetrarhoda*, Wlk.—*Aquilegiæ*, Koch.

#### Genus 6. TOXOPTERA, Koch.

Antennæ seated on a short frontal tubercle. Cubital vein of the forewings once forked. In other characters like *Myzus*. This genus has not been recorded as British.

A. Viviparous apterous female black or brown. . . . . 1. *Aurantii*.

AA. Viviparous apterous female bright green . . . . . 2. *Graminum*.

1. *T. Aurantii*, Fonscolombe (*Aphis Cameliæ*, *Kaltenbach*).—On *Citrus limonum*, on *C. Aurantium* and *Camelia Japonica*.

2. *T. Graminum*, Passerini.—On various species of *Gramineæ*.

(To be continued.)

#### *Ornithological Notes from North Lincolnshire.*

By JOHN CORDEAUX, Esq.

(Continued from Zool. S. S. 1031.)

DECEMBER, 1867.

*Little Gull*.—December 3. A wild and stormy day. Saw a little gull this morning in the marsh near the Humber: it passed just out of shot, and joined some brownheaded gulls feeding on the grass lands. I found it impossible to get near it.

*Tree Sparrow*.—Flocks of this species frequently observed during the autumn and winter. I have for some years been on the look out for the tree sparrow in this parish, but, previous to this season, have not obtained specimens: indeed they seem very locally distributed through this district. Unlike their domestic congeners they, as a rule, shun the habitations of men, collecting in small flocks and feeding in

the stubbles. To-day, December 17th, I saw a flock numbering not less than 150, crowded together along the top of a close-clipped quick fence. They may be readily distinguished from the house sparrow, even at a distance, by their smaller size, white collar, and the two white bars on the wing; indeed they more nearly resemble in size the blackheaded bunting of our drains, and at a distance have a certain general resemblance to the male of that species. They are altogether a smaller and weaker bird than the house sparrow: this is very apparent when we compare the feet and claws of these species. Their flight is weak and undecided, and their note peculiar, and not as strong and clamorous as that of the common bird. The mingled notes from a flock remind one more of a chorus of linnets than the noisy, rattling gabble of the domestic bird. During severe weather I have seen them in the stack-yards, not associating with the common species, but keeping apart. In the fields the flocks keep together, feeding alone, and not mixing with other birds. Montagu appears to have been the first to note the similarity in the plumage of the sexes.

*Little Grebe.*—The fish-keeper brought me, this evening, a little grebe captured on the "beck." It is a bold and fearless little bird, and struck fiercely and repeatedly at my hand when I lifted it out of the basket. The next morning I put the little fellow into my shooting-coat pocket, and went down to the stream, turning it loose in a quiet corner near the osier-beds. The little bird went off at once in a direct line, flying along the surface of the water, its wings moving rapidly, and its feet at the same time working alternately like paddles, the tip of each foot catching the water at every stroke—exactly the same motions as it would have used in diving. It is seldom we have an opportunity of seeing the little grebe fly.

*Hérons.*—Occasionally I see seven of these birds together on the grass lands in the marsh. My idea is that they spend the winter in the marshes, fishing during the night in the drains, in almost any of which we may see their foot-prints, and sleeping, during the short time they devote to that purpose, near the centre of some fifty-acre field, where it is impossible by any stratagem to get any where near them; and, indeed, they will hardly permit anyone to stand for a moment and look in their direction without rising and flying off to the "flats," where they are not likely to be disturbed.

*Bernicle Goose.*—Small flocks of these geese—here known as "Spanish geese"—seen on the flats and neighbourhood during the



month of December. It is many years since I noted their last appearance in this district.

*Wild Fowl*.—Quite an average season in the Humber district. Those species which have come under my own observation, shot on the Humber, are, *Anas boschas*, *Penelope*, *tadorna*, *fuligula*, *marila*, and *ferina*.

*Glaucous Gull*.—When at Chester, on the 28th of December, I was shown a rather small specimen of this gull, in immature plumage, recently shot on the coast of North Wales.

#### JANUARY, 1868.

*Pied Wagtail*.—Seen more or less during the last three months in the turnip-fields, in close attendance on the folds of sheep.

*Blackbird and Thrush*.—Were singing on the mornings of the 17th, 18th and 19th of January.

*Merlin*.—By no means common. I generally, however, see one or two in the course of the autumn and summer. January 23. Saw a merlin in chase of a lark, which it struck at and missed and then immediately gave up the pursuit.

*Snow Bunting*.—Not observed before the 29th of January, when I put up a small flock, late in the evening, in a field covered with rough grass. These buntings feed during the winter almost entirely on the small seeds of various grasses and weeds. They thread their way amongst the long rough grass, running much after the manner of larks. There is a great diversity in the plumage of these birds. I seldom get two quite alike. I fancy the flocks which visit us during the winter consist of several families which pack together, perhaps the produce of certain localities; the young broods and old birds keeping together for the winter: the proportion of old birds usually seen in the flocks seems to bear out this supposition. It is curious how authors differ in their description of the plumage of these birds.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,  
February 4, 1868.

*Errata*.—There is a printer's error in my notes (Zool. S. S. 1029), paragraph "Dunlin," line 6, for "partial" read "pectoral." There is also an error of my own at page 1030, paragraph "Redwing, &c.," for November 18th read October 18th.—  
J. C.

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*Ornithological Notes from Norfolk.*

By HENRY STEVENSON, Esq., F.L.S.

(Continued from S. S. 1014).

## NOVEMBER, 1867.

*Crossbill*.—On the 19th one red male and two females were shot at Mousehole, near Norwich.

*Snipe*.—A rather unusual number of these birds (*Scolopax gallinago*), after three rime-frosts, were met with in the marshes between Norwich and Yarmouth, about the 20th, and on the 30th thirty or forty couple appeared for sale in our fish-market, killed nearly all within five or six miles of the city. The weather not severe enough for much fowl.

*Spotted Crake*.—A bird of this species, as Dr. Lowe informs me, was killed at Gayton on the 30th of November, and sent to the Lynn Museum.

## DECEMBER, 1867.

This month commenced with severe gales, followed by snow and sharp frost, which fully accounts for the snipe shifting their quarters and the large flocks of small birds observed everywhere in the county just prior to the change.

*Gannet*.—A fine adult bird, carried inland by the gale, was taken alive on the 7th at Harford Bridge, close to this city, between twenty and thirty miles from the nearest point on the coast, and was exhibited at a fishmonger's shop as a "wandering albatross."

*Shovellers*.—On the 11th, in our fish-market, I saw a young male, which, like one sent to a birdstuffer in Norwich on the 20th of November, had the point of the wings and lesser wing-coverts blue, as in adults; and on the 13th of December I saw an old male, killed a few days before, which had not yet completed its change, and still showed traces of its temporary female dress.

*Peregrine*.—A fine old male was killed at Haverland, about the 28th, and besides being a very small bird was frightfully thin. On dissection the stomach was found empty, but on the outer surface were a considerable number of long thin worms, averaging about  $5\frac{1}{4}$  inches in length.

*Whiteeyed Duck*.—A specimen of this rare pochard, said to have

been killed at Yarmouth, was exhibited in Leadenhall Market on the 18th, and also an eared grebe, from the same locality.

*Eider Duck*.—A female, as Dr. Lowe informs me, was shot in Thornham Harbour on the 16th, and purchased for the Lynn Museum.

*Hawfinch*.—Several of these birds have been killed during the month in different parts of the county.

*Bittern*.—December 8th. Two fine birds in our fish-market, and another killed at Hickling on the 19th.

*Redthroated Diver*.—Several killed at Lynn since the end of November, attracted apparently by the sprats, which at this time are found in shoals in the estuary, and are caught in large quantities by the fishermen.

*Longtailed Duck*.—An immature female killed at Hickling on the 12th.

#### JANUARY AND FEBRUARY, 1868.

In spite of somewhat severe frosts at times we have had no continuance of hard weather this winter, which accounts for the absence of wild fowl generally, in any considerable quantity, and of the adult male birds of the rarer species. But few wild swans have made their appearance, and of these I have heard of but three or four being killed, and all of the common or whooper species.

*Hen Harrier*.—A fine adult male, at Hickling, on the 9th of January; a still older bird than one shot on the 2nd, at Burgh, near Yarmouth.

*Waxwing*.—I have seen but one specimen this winter, though I have heard of three or four more in different parts of the county, but they are evidently as scarce as they were plentiful last year.

*Bittern*.—The usual flight of these regular winter migrants has been distributed on our coast, being decidedly not the *rara avis* of newspaper paragraphs. Some six or eight have been killed, to my knowledge, on the broads and in the Lynn district.

*Smew*.—Old females and young birds somewhat numerous, but I have not heard of a single adult male. Female mergansers and goosanders have appeared, in like manner, apart from their more conspicuous consorts.

*Divers and Grebes*.—Several immature specimens of both the red and blackthroated diver have been killed during the month of January. Two eared grebes, in winter plumage, were shot, one at



Barton and one at Reedham, about the 11th of January, and a red-necked grebe, with slight appearance of red on the throat, on the 8th of February.

*Longtailed Duck*.—As an exception to the general rule, a fine adult male of this species was shot on the 8th of January, at Titchwell, near Brancaster; but rarely met with, except during very severe weather.

*Pectoral Sandpiper*.—Through the kindness of Dr. Lowe, of Lynn, I had the opportunity of examining a specimen of this rare American sandpiper (making the fourth known to have occurred in Norfolk), which was caught in a net on Terrington Marsh on the 9th of January. This bird proved, on dissection, a female, and in immature plumage, but from the reddish margins to one or two of the feathers indicated already a state of change.

*Redcrested Whistling Duck*.—I was recently shown a very fine female of this extremely rare species, which had been shot, early in December, on Hickling Broad, and sold as the female of the velvet scoter. I am happy to say that it is now in good hands, and, its real value being known, will be properly cared for.

*Shag*.—Amongst other effects of the heavy gales, which, commencing on the 1st of February, lasted for several days, was the appearance of a fine adult female of this rare visitant on our eastern coast. This bird was sent up to Norwich on the 8th, having been picked up dead on the beach in the neighbourhood of Cromer, and was in most beautiful plumage, the rich bottle-green of its feathers contrasting with the bright yellow round the gape of the beak. The stomach, I am informed by Mr. T. E. Gunn, contained some five or six large white worms, like those recently found in the stomach of a cormorant.

*Lesser Spotted Woodpecker*.—On the 15th of February I saw, in the flesh, an adult male of this scarce species, which had been killed at Shottesham, near Norwich, and another was said to have been seen.

HENRY STEVENSON.

Norwich, February 19, 1868.

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*The Ermine in White Apparel*.—On Tuesday, the 10th of February, a stoat in the ermine dress was trapped a short distance from here: it was sent to me, and as it is very rare that stoats are found in the white dress in this neighbourhood, I have taken the trouble to set it up. It is almost perfectly white: the only brown hairs on it are

around each eye, and a very slight sprinkle on the cheeks. I have never had one before, and I inquired of an old gamekeeper, of more than forty years' standing, who tells me he never saw one during his long experience. A rather curious circumstance took place whilst I was skinning the stoat: I happened to cut one of the glands which secrete the very pungent matter so disagreeable in animals of this class; my dog, on coming into the room where I was at work, became very excited, running around the room as fast as he could go, at the same time giving tongue as if he had been in full pursuit of vermin.—*Stephen Clogg; Looe, February 15, 1868.*

*Gray Hare in Suffolk.*—About the 12th of last January a beautiful variety of the common hare, a female, was killed on the Rendlesham estate near Wangford, in Suffolk, the whole surface of its coat being of a silver grayish hue, suffused with a pale reddish tinge on the head, ears, neck and flanks.—*T. E. Gunn; 21, Regent Street, Norwich.*

*Do Cats kill Squirrels?*—In the January number of the 'Zoologist' (S. S. 1057) I noticed an inquiry, "Is it not unusual for cats to kill squirrels?" In rather a wild district, in the western part of the county of Durham, I have seen a cat go out into the woods before breakfast, and soon return with a squirrel in its mouth; and the person to whom the cat belonged assured me that it was a frequent practice of this one to hunt them, and that both squirrels and rabbits often fell victims to its foraging propensities. The house was situate in the midst of a wood, which accounted for the cat's often possessing much more of the wild cat nature than her more domesticated cousins of the town.—*Eliza Barclay; Blackwell, Darlington, February 4, 1868.*

*Badger in Lincolnshire.*—These animals, notwithstanding the breaking up of many of their old haunts, and the constant persecution of gamekeepers, &c., are still found in two or three localities in North Lincolnshire. Two of these animals have lately come under my notice. One, a male, was captured alive; the other, a remarkably large and fat female, and suckling at the time of her capture, was brought into Grimsby by some poachers about the 20th of January, and sold to a bird-preserver: from the circumstances of its capture this man could not learn the exact locality where it was taken: it is the largest I have ever examined, weighing four stone nine pounds. The following are the dimensions taken at the time:—

|                                                        |           |                  |
|--------------------------------------------------------|-----------|------------------|
| Length from tip of nose to end of tail, including hair | -         | 3 feet 3 inches. |
| " of tail, including hair                              | - - - - - | 8½ "             |
| " of head                                              | - - - - - | 7½ "             |
| " of middle claw                                       | - - - - - | 1¼ inch.         |
| Girth behind shoulders                                 | - - - - - | 2 feet 2 inches. |
| " of fore leg                                          | - - - - - | 6 "              |

—*John Cordeaux; Great Cotes, Ulceby, Lincolnshire.*

*Birds of Stirlingshire.*—Being at present engaged in collecting materials for a small work on the birds of Stirlingshire, I should feel deeply grateful to any of the correspondents of the 'Zoologist' if they would let me know of any occurrences of our rarer birds in that county, with any particulars of their capture, &c. As I have hitherto had some difficulty in finding many works from which to compile, I should also be much obliged to any one who would direct my attention to any such. The

Ornithology of this county has in former years, I feel sure, been much neglected. Its position with regard to others of the midland counties is very favourable indeed in an ornithological point of view, having a good coast line to the east, and the queen of Scottish lochs to the west.—*John A. Harvie Brown; Dunipace House, Falkirk, January 3, 1868.*

*A few Suggestions in connection with a future Great Work on British Ornithology.*—I offer the following suggestions for the consideration of the readers of the 'Zoologist.' I send them, from a desire on my part, which I think must be shared by many other lovers of our British birds, to see some future large and exhaustive work upon their Natural History, and to see that work undertaken upon some systematic plan by a *body* of our best British ornithologists, each member of that body having his own portion of the work to perform. It is then with this hope that I wish to draw attention to the subject, and to induce the readers of the 'Zoologist' to express their ideas concerning the plan or method on which this future work should be undertaken. In all humility I submit the following for consideration, hoping to see it improved upon by others. I would then suggest that a committee be appointed by ornithologists, by vote or otherwise, as may be agreed, and that that committee be empowered to choose from amongst their number three, six, or more members, on whom shall devolve the labour of preparing a new great work on British Ornithology for the press. Also, supposing that the individuals chosen are perfectly willing to undertake the task, that they do so, after some such plan as the following:—1. Give the name of the species, using the most generally accepted nomenclature and adopting the best arrangement as yet known to naturalists. 2. Give a list of all synonyms, if practicable. 3. Give a list of all local names, or the most important of them. 4. A description of the birds, male and female, as relating to measurements, colour of plumage, &c. Also include a description of any varieties which have occurred within the experience of the author, such as albinos, &c. 5. Give the geographical distribution of the species in other countries. 6. Give the local distribution of the species in this country, with an account of the local or universal migrations, and a history of their habits, as connected with such. 7. Give a full description of the nest and eggs of the species, both of the type and of varieties, along with the habits of the species whilst engaged in nidification and incubation. 8. Give a description of the young in the downy state. 9. A description of the young in their different changes of plumage before attaining to the adult stage. (See "Log of the Gray Gull," Zool. S. S. pp. 243, 328, 361, 518). 10. An account of the habits of our migratory and rarer birds, as observed by naturalists abroad. 11. A short account of closely allied species on the Continent or elsewhere, with a reference to works upon European or other Ornithology in which they may occur. 12. Where practicable, a description of the down of the different species of Anatidæ as found in the nest, for the assistance of collectors in identifying their eggs. I might add to these suggestions *ad infinitum*, but as the list may already seem somewhat lengthy I will now conclude, leaving to the readers of the 'Zoologist,' should they consider the subject worthy of their attention, to alter, add to, or improve upon them.—*Id.*

*Merlin near Barnstaple.*—While driving from Barnstaple to Braunton, a few days ago, I saw a merlin sitting on a gate-post by the road-side. It was so fearless that it did not fly off until I was quite close to it. The next day the bird was in our bird-stuffer's shop: it had been shot, within a hundred yards of the spot where I noticed it,



by a gunner with a walking-stick gun. This pretty little hawk is scarce with us in the North of Devon.—*G. F. Mathew; H.M.S. "Britannia," Dartmouth, February 3, 1868.*

*Kestrel feeding on a Frog.*—In examining the stomach of a female kestrel, on the 15th of December last, I found the contents entirely composed of the remains of a frog, including the bones of one of the anterior legs almost entire. I think this an unusual occurrence. Have any of the readers of the 'Zoologist' met with any similar instance?—*T. E. Gunn; Norwich, January 7, 1868.*

*Reply to Captain Hadfield's Note on the Buzzards seen in Kent.*—I am very much obliged to Captain Hadfield for his kindness in offering an opinion about the buzzards seen in Kent. I have since made further inquiries, and the keeper states that both the birds were light-coloured underneath, and had white feathers on the upper part of the tail. Captain Hadfield reminds me that the tail-coverts of the male common buzzard are whitish, but it is not the tail-coverts that are white in the roughlegged buzzard, but the basal part of the tail-feathers, and this white prevails more or less in different specimens, according to the chief writers on Ornithology, but is never absent. If the tail-coverts only had been whitish in these buzzards, the white would not have struck my eye so readily. No doubt Captain Hadfield is perfectly right in preferring the distinction of the dark bar to that of the white base of the tail, but this latter distinction should not, I think, be set aside. In the two specimens I have examined both peculiarities are most strongly marked. It is easy to see that the white base of the tail would be observed sooner than the dark bar on the belly, in the case of the bird being seen at a distance, and not immediately over the observer's head. All these points being considered, I think I am justified in calling these birds rough-legged buzzards. It is a pity they did not stay longer to be more closely observed.—*Clifton.*

*Brown Owl breeding in Confinement.*—Is it not unusual for barn owls to breed in confinement? A few years ago, at Cotteshall, I kept some in a small aviary which I built, about four feet by six feet: three eggs were laid, two of which were hatched, and the owlets brought up till full grown.—*Thomas Sweetapple, jun.; Eashing, near Godalming, February 17, 1868.*

*Thrush with Malformed Beak.*—On the 26th of December I shot a thrush in a field at Lakenham, near this city: the upper mandible of its bill I found was malformed by curving over one side of the lower mandible. Notwithstanding this mishap (which was doubtless caused by some accident when young) the bird was in good condition and rather fat.—*T. E. Gunn.*

*Scarcity of the Redwing in North Devon.*—This bird has been remarkably uncommon in the neighbourhood of Barnstaple this winter: I do not think I have seen more than two dozen altogether. I shall be glad to hear if it has been as scarce in any other part of the country, as with us it is usually so plentiful.—*G. F. Mathew.*

*Buff Variety of the Hedge Accentor.*—A few days since a variety of this familiar species, a female, was brought me for preservation: it was in a rather advanced state of decomposition, having been killed somewhere in this neighbourhood about the middle of December. The whole of the upper parts of its plumage were of a uniform buff colour; flanks the same; throat and breast grayish, inclining to dull white on its abdomen; bill and legs pale yellowish brown; eyes much paler than in ordinary specimens. Varieties in plumage of this species are, I believe, seldom met with. Two

former instances have come under my notice; one in which the plumage was somewhat similar to that described above, and in the other instance it was piebald; the occurrence of these I recorded in the 'Naturalist' for 1864-5, vol. i. p. 146.—*T. E. Gunn*; January 8, 1868.

*Bohemian Waxwing in Yorkshire.*—Mr. Charlesworth tells me that great numbers of this rare straggler were observed frequenting the neighbourhood of Richmond, Yorkshire, in the winter of 1866-67. A gamekeeper shot some, and two were preserved and are now in the possession of Mr. Charlesworth: this gentleman also states that the common cross-bill is a regular winter visitor to some woods about twelve miles from Richmond.—*A. Clark-Kennedy*; *Eton, Bucks.*

*Bohemian Waxwing at Newmarket.*—A very fine specimen of the Bohemian waxwing (a female) was brought for me to stuff this morning. It was shot by Mr. Wright, farmer, at Newmarket. When shot it was feeding on a fir tree.—*William Howlett*; *Newmarket, January 1, 1868.*—*From the 'Field.'*

*White Lark near Eastbourne.*—December 14, 1807. I have this day seen a female sky lark, pure white, without a blemish; eyes hazel; feet flesh-colour. It was shot by Mr. Osbourne, farmer, Eastbourne.—*John Dutton*; *Eastbourne.*

*Wood Lark*—I saw one passing over on the 8th and two on the 14th of January; one of the latter, which I more particularly noticed, seemed to be very dark-coloured.—*Clifton*; *Eton College, January, 1868.*

*Blackheaded Bunting in Dry Woods.*—On the 28th of December I was much surprised to see a male blackheaded bunting in a dry coppice, the last place in which I should have expected to see one. The nearest water to the wood is the Medway.—*Id.*

*Snow Bunting at Hastings.*—As I have not yet seen a note on the occurrence of this bird near Hastings in the 'Zoologist,' I may as well give the following short extract from a letter, dated the 11th of December, 1867, from my friend Mr. R. B. Sharpe, of the Zoological Society. He says, "At Hastings, last Saturday, I got a snow bunting, just shot, which I bought, making the second one I have got which is British-killed." Mr. Sharpe observes, in a late number of 'Land and Water,' that this bird was a male, and that it was killed on the 7th of December; and he further states that he had received, on the 19th of December, another beautiful specimen, which had been shot at Rye by his friend Mr. James Norden. The flock which frequented the neighbourhood was very wild, and consisted of about twenty individuals.—*A. Clark-Kennedy*; *December 31, 1867.*

*Erratum.*—Under the heading "Large Pike in Buckinghamshire" (S. S. 1061), for "trimmel" read "trimmer."—*Id.*

*Nesting of the Yellowhammer.*—In the 'Zoologist' for October Mr. Clogg mentions the fact of having found the nest of the yellowhammer (*Emberiza citrinella*) as late as the 26th of August. In 1864 I found one in a wheat-field, when we were harvesting in September; it contained five eggs, hard-set. In 1856 I found another on the Whitby Moors, in a hedge, the boundary of a wheat-field, on the 6th of October; it contained two young ones: a notice of this fact found its way into a Malton paper. In 1865 some mowers showed me one they had found among some laid wheat; it contained four eggs, hard-set. I believe the yellowhammer rears two or more broods a year. They are amongst the earliest builders, taking rank next to the hedgeparrot, blackbird and thrush; and long after all other birds have done breeding, their nests are

found, certainly as late as the 6th of October. They are very plentiful in this neighbourhood. In a stroll up the lanes they are scarcely ever absent from view for five minutes at a time, and during the winter they frequent the stack-yards in great numbers to receive their tithe of the corn, the wages of their summer's service.—*John Ranson; Linton-on-Ouse, York.*

*Rosecoloured Pastor.*—I believe, as you write, that "the rosecoloured pastor is extremely rare in this country." My father was a very careful observer of birds for half a century, and I have heard him say that he never knew of but one being shot, and he had heard of a second, both in the East Riding of Yorkshire. For a quarter of a century I have noted the occurrence of rare birds in the neighbourhood of my dwelling, and I have never seen but one, and have never heard of another. The one I have seen is in the possession of a gentleman farmer near York, and was shot by him in his orchard. There were two, but the other escaped. The person who stuffed it, a man of great experience, told him it was very rare indeed.—*Id.*

*The Hawfinch at Epping.*—This bird is resident here throughout the year, and breeds in considerable numbers in the forest and neighbouring woods and plantations, but I believe their numbers are increased in some seasons by arrivals from the Continent: this was the case in the winter of 1865-6, when large flocks were scattered all over the forest. The seeds of the hornbeam are the favourite food of this species, and in the autumn of 1865 there was an unusual quantity on the trees. The hawfinch is an extremely shy and wary bird, and I am quite sure that no "urchin who goes out to pop at small birds" would have the slightest chance of getting hold of any of them here.—*Henry Doubleday; Epping, February 18, 1868.*

*The Crossbill breeding successfully in County Kildare.*—I was informed last March, by Mr. Glennon, taxidermist, of Wicklow Street, Dublin, that crossbills were breeding in the grounds of Kilkea Castle, Margeney, County Kildare. The weather was so severe, and wild-fowl shooting so good, that I could not get to Margeney to see the interesting sight, and later in the spring I was so busy with the sea-fowl (not shooting them) that I deferred till too late my visit to Mr. Roussel, the steward of Kilkea Castle, but got the following full particulars from him, which may be interesting to some of the readers of the 'Zoologist.' "This is the fourth winter I have spent," says Mr. Roussel, "at Kilkea, but until last winter did not see a single crossbill. There were about five or six pairs which had nests; I shot two and a half pairs at first, never thinking that they would breed here, and had them stuffed. Very early, about the middle of February, I happened to see the birds building—found one nest, a little later another, and afterwards two more much later: I think the last two must have been second nests. One night, about the 10th of March, we had a very severe storm and high wind: the following day I got a person to go up the tree, who found that a large cone had, unfortunately, fallen into the nest, and four pretty strong birds were killed. Another nest, the female sitting, was destroyed the same night. I had only one nest safe, out of four, containing five young birds. There were many young birds in the plantation about the 1st of May: I often saw them in great numbers, say twenty or twenty-five together: they all left in the middle of summer. But for the storm I should have had three beautiful clutches: I found them easy reared, getting much attached to the person who feeds them. I lost a most beautiful male bird, killed by a hawk, at my window: Mr. Glennon has it now stuffed for me. The male has a very sweet note when the female is sitting: he keeps a little away



from the nest, but upon the same tree, looking down at her from time to time. It is very curious to see them feeding, suspended from the cones, making, as it were, a part of them. I sent one of the nests to Mr. Glennon, and have not the least doubt but that they would have bred in frost and snow had the nests not been destroyed and blown down. I have been every day this winter on the look-out for them, but could not see a single bird, though I have been told by one of our men that he saw a couple very early in the season." Thompson, in his 'Natural History of Ireland,' mentions them as having bred at Tollymore Park, County Down, in 1836, and probably 1846. Seen with their young in 1839, at Ballibrado, near Cahir, and supposed to have bred there also the year previous. They were seen in numbers in County Dublin in March, 1838. In 1837 many were seen in June, at the Dargle, County Wicklow. Since the publication of Thompson's work I have not heard of the crossbill breeding in Ireland, till last March at Kilkea. In no former instance was the proof so decisive as that afforded by Mr. Roussel, who deserves the thanks of Irish ornithologists for his observations.—*Harry Blake-Knox; Dalkey, Co. Dublin; January 27, 1868.*

*Nuthatch in Ireland.*—It seems to be the general opinion that the nuthatch is never found on the other side of St. George's Channel: notwithstanding this, my brother informs me that he saw a nuthatch in County Meath in 1866. He knows the bird well.—*Clifton; Eton College, February 12, 1868.*

*Pigeons perching on Trees.*—Several pigeons, probably escaped from the dovecote, frequent a large building in the middle of the park at Cobham: I believe they breed there: from four to six are generally seen there. Those I have seen appear to be like the wild rock dove, light blue with black bars on the wings, but I have been told there is one particoloured bird. One of these birds, to my great surprise, flew to the top of a high tree and sat there for some time. I believe it is well known that the common pigeons often reassume the habits of the rock dove, and frequent rocks and old buildings. Mr. Meyer seems to me hardly accurate when he states that *wild rock doves* frequent some old buildings in Surrey. I should imagine they were escaped house pigeons that he saw.—*Id.*

*Thickkneed Plover in the County of Dublin.*—A great or thickkneed plover (*Œdicnemus crepitans*) was killed in this county, on the 4th of January, by Henry Jameson, Esq., of Hermitage Roebuck. In answer to an inquiry Mr. Jameson very kindly wrote me that he had shot the bird in the grounds of his brother, John Jameson, Esq., Saint Marnock's, between the Velvet Strand and Baldoyle, in the borough of Saint Marnock's. The bird made very short flights before being shot, and from that circumstance it was presumed had not long arrived in Ireland. I saw the bird at Mr. Glennon's, taxidermist, Dublin.—*Harry Blake-Knox; Dalkey, County Dublin, January 31, 1868.*

*Common Bittern in Aberdeenshire.*—An adult male, in fine plumage, of this species, which occurs only now and again in Scotland, and fully as often in Aberdeenshire as in any of the other counties, was shot on the 20th of December, 1867, at Badenscoth, and sent to Mr. George Sim, taxidermist, 20, King Street, to be stuffed, and to whom I am indebted for the opportunity of making a description of the bird while in the flesh. It weighed two pounds and a quarter. Its stomach contained beetles, some moss and a few grains of quartz.—*W. Craibe Angus; Aberdeen.*

*Bittern near Pontefract.*—My friend Mr. Charlesworth informs me that a bittern was shot by the gamekeeper, near a small stream in the vicinity of Pontefract, during

the year 1867: he examined it after it had been preserved.—*A. Clark-Kennedy; Eton, February 20, 1868.*

*Bittern in Berkshire.*—Early in December, 1867, a fine male bird of this uncommon species was seen near Cookham, in Berkshire, by Mr. Robert Hill, who, however, failed to procure the specimen, which was eventually shot by a man named John Wig, who killed another male of the species about six years ago, which is at present in the collection of Mrs. De Vitre, of Formosa, near Cookham.—*Id.*

*Spoonbill in the North of Yorkshire.*—The head keeper of Mr. J. C. D. Charlesworth killed a fine specimen of the spoonbill in one of the early months of 1867, on a marshy tract of country, the property of the above-mentioned gentleman, in the neighbourhood of Richmond, Yorkshire. This bird was shot in the head, and was so mutilated that it was unable to be preserved.—*Id.*

*Whimbrel in January.*—On the 20th of January I saw two of these birds feeding on some mud-flats on the banks of the Taw. They were unfortunately rather wild, and would not allow me to approach quite within shot. One had been killed out of a small flock a few days before, at Instow, and so probably these were the remaining birds. I was astonished at seeing this species at this time of the year.—*G. F. Mathew.*

*Mute Swan on Northam Burrows.*—Two of these fine birds were seen on Northam Burrows about a fortnight since, and one of them shot. The other frequented the neighbourhood for several days, but was so wary it could not be approached. I examined the bird killed, and it presented no appearance of domestication.—*Id.*

*Eider Duck on the Thames.*—On the 12th of December, 1867, an interesting specimen of the female eider, a bird of the year, was shot on the Thames, in the lower end of the "Jenkin Swatch," near the mouth of the Medway, by Mr. Godfrey Walmsley, and presented to me by his father.—*Arthur W. Crichton.*

*Storm Petrel in Yorkshire.*—Since my last communication on this subject (Zool. S. S. 1060), I have received another letter from Mr. J. H. Gurney, jun., informing me that no less than nine of these little birds were procured near Bridlington Quay, Yorkshire, about the same time as the one of which I sent you a notice.—*Alexander Clark-Kennedy; December 31, 1867.*

*Parasites of Birds.*—There is a question I should like to ask, and that is, has any one ever given a list of the parasites which infest birds? I fancy a paper on this subject would be interesting. I for one would much like to have some information on the subject, and possibly it might bring to light some new facts as regards the life-history, and the death, of some of our British birds.—*John A. Harvie Brown.*

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## PROCEEDINGS OF SOCIETIES.

### ZOOLOGICAL SOCIETY.

January 23, 1868.—JOHN GOULD, F.R.S., V.-P., in the chair.

A letter from Mr. Gerard Krefft, corresponding member at Sydney, was read in which the writer stated that amongst the fossil remains in the Australian Museum, he had discovered a portion of the humerus of an extinct species of *Echidna* from the Darling Downs.

The Secretary read an interesting communication from Mr. E. P. Ramsay, of Dobroyde, N. S. W., with reference to the habits and nesting of the lyre bird (*Menura*

*superba*). Skins of both sexes were exhibited, together with a newly-hatched chick, and egg. A lengthy discussion followed upon the affinities of this remarkable species; some naturalists present considering it to be an Insectorial, and others a Rasorial, bird. The possession of a newly-hatched chick was a most important point in determining the question, and it was observable that the feet, which, in the young of all the Rasores are sufficiently developed in the shell to bear the weight soon after its extrusion, were in this case remarkably small and weak. This of itself, is a strong argument in favour of its affinity to the Insectores. It has generally been considered as most nearly allied to the Birds of Paradise.

Messrs. Sclater and Salvin exhibited some new species of birds from America belonging to the families Strigidae, Dendrocolaptidae and Columbidae, and communicated descriptions of them.

Dr. Gray read a description of a new species of Macaque, from the province of Szechuen, lately presented to the Gardens of the Society, and proposed to name it *Macacus lasiotus*.

He also made some remarks upon the margin-tailed otter of Guiana (*Pteronura Sandbachii*) and exhibited some skins of the animal, together with a stuffed specimen from the Liverpool Museum.

With reference to the recent loss of the walrus in the Gardens of the Society, Dr. Murie described the cause of death. This resulted from ulceration of the stomach caused by the presence of hundreds of Entozoa which attached themselves in patches to the internal membrane. They appeared to belong to a new species, and as such have accordingly been described by Dr. Baird, who has proposed the name *Ascaris bicolor*. Dr. Murie exhibited a large glass jar full of these Entozoa. Slender and vermiform in appearance, they average in length about an inch and a quarter, and are of two shades of colour, light and dark brown. It was this latter peculiarity which suggested to Dr. Baird the name which he has proposed for them.—J. E. H.

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#### ENTOMOLOGICAL SOCIETY.

*Annual Meeting, January 27, 1868.*—Sir JOHN LUBBOCK, Bart., President, in the chair.

An Abstract of the Treasurer's Accounts for 1867 was read by Mr. Grut, one of the Auditors, and showed a balance in favour of the Society of £75 8s. 4d.

The Secretary read the Report of the Council for 1867.

The following were elected Members of the Council for 1868:—Messrs. Bates, Dunning, Grut, Sir John Lubbock, M'Lachlan, Salvin, G. S. Saunders, W. W. Saunders, F. Smith, Stainton, S. Stevens, Trimen and Westwood.

The following Officers for 1868 were afterwards elected:—President, Mr. H. W. Bates; Treasurer, Mr. S. Stevens; Secretaries, Messrs. Dunning and M'Lachlan; Librarian, Mr. E. W. Janson.

Sir John Lubbock read the President's Address. (See 'Entomologist' for March.)

Mr. Pascoe proposed a vote of thanks to Sir John Lubbock for his conduct in the chair throughout his tenure of the Presidency, accompanied by a request that the admirable Address just delivered might be published in the Society's 'Journal of Proceedings.' This was seconded by Mr. Grut, and carried by acclamation.



Sir J. Lubbock returned thanks, and acceded to the request.

The thanks of the Society were also voted to the other Officers, the Auditors, and the Members of Council for 1867, and were acknowledged by Mr. S. Stevens, Mr. Dunning, Mr. Janson and Mr. J. Jenner Weir.

February 3, 1868.—H. W. BATES, Esq., F.Z.S., President, in the chair.

The President, after thanking the Society for the honour conferred upon him by his election to the chair, nominated as Vice-Presidents, Sir John Lubbock, Mr. W. Wilson Saunders, and Mr. Stainton.

#### *Donations to the Library.*

The following donations were announced, and thanks voted to the donors:—  
'Proceedings of the Royal Society,' Nos. 93—97; presented by the Society. 'Abhandlungen herausgegeben vom naturwiss. Vereine zu Bremen,' vol. i. part 2; by the Society. 'Coleoptera Hesperidum, being an Enumeration of the Coleopterous Insects of the Cape Verde Archipelago,' by T. V. Wollaston; by the Author. Newman's 'British Moths,' No. 14; by the Author. 'The Zoologist' for February; by the Editor. 'The Entomologist's Monthly Magazine' for February; by the Editors.

#### *Exhibitions, &c.*

Mr. Bond exhibited a female specimen of *Drilus flavescens*, the second specimen of that sex, he believed, which had been found in this country. On the 1st of April, 1867, Mr. J. E. Harting was collecting shells on the South Downs at Harting, Sussex, and the *Drilus* was discovered in a shell of *Helix ericetorum*. The larva has for some time been known to live in snail shells (see Proc. Ent. Soc. 1858, p. 9), and Mr. Bond suggested that the female had been hatched in the shell in which it was discovered, and had never quitted it until disturbed by Mr. Harting.

Mr. Bond exhibited larva-skins of a species of *Dermestes*, which he was at first informed had not only destroyed the bladder-coverings of sixty pots of preserved fruits, but had also eaten a considerable portion of the contents; but on further inquiry it turned out the larvæ had not in this case eaten any of the fruit, but merely damaged the surface, which was covered with larva-skins and "what appeared to be powder or small eggs." Mr. Newman, however, had informed Mr. Bond that a city house had recently sustained great loss from the same insect: in this instance the pots of jam were covered with paper only, not with skin, and the larvæ had actually consumed part of the contents, and rendered the whole worthless.

Mr. M'Lachlan had found quantities of a *Dermestes* larva in the timbers of a ship, upon which they had fed. Mr. F. Smith had reared *Dermestes* from timber; and Mr. Janson had often noticed that the larvæ would forsake hides and take refuge in the wooden flooring of a building, but this was probably for pupation, not for sustenance.

Mr. Daniel Hanbury communicated a letter from Dr. Bidie, of the Madras Army, respecting the "coffee-borer" of Southern India (see Proc. Ent. Soc. 1867, p. cix); and Mr. F. Smith mentioned that in Chevrolat's collection in the British Museum there was a single specimen, labelled *Xylotrechus quadripes*, which seemed to be identical with the insect recently received from India.

With reference to Mr. Stainton's larva of a *Tinea* found feeding in an antelope's horn (Proc. Ent. Soc. 1867, p. cv.), Mr. Bond mentioned that a similar case was

recorded by Mr. Haliday in the Proc. Dublin Univ. Zool. Soc. 1855: see Dublin Nat. Hist. Review, vol. iii. p. 23, pl. i.

Mr. Bond also exhibited a specimen of *Bombyx Quercus*, in which the colours of the male and female were combined.

Dr. Wallace exhibited two British-born specimens of the Japanese oak-feeding *Bombyx Yamamai*, one reared by Mr. Gascoyne at Newark, the other by Mr. Shoolbred at Wolverhampton; and some eggs laid by Mr. Gascoyne's specimen. Also specimens of *Bombyx Pernyi*, a Chinese oak-feeding species, which he hoped would be naturalized in this country. Also, an imago and cocoon of *Pachypusa effusa* from Graham's Town, an acacia-feeder, from which an attempt was being made in South Africa to obtain silk, though the nature of the cocoon gave little promise of a favourable result. Dr. Wallace made some observations on the progress of sericulture, as well of mulberry silk as of *Ailanthus* silk, at the Cape of Good Hope and in Australia; and expressed his opinion that, although he found the air of the Eastern Counties of England too dry for *Bombyx Yamamai*, that species would probably succeed better in the cool and moist climates of Ireland or Scotland.

Dr. Gray communicated the following extract from a letter received by him from Dr. George Bennett, dated "Sydney, 21 October, 1867":—

"We have had, since the 14th of September, a wonderful flight of moths in Sydney and the vicinity, extending inland fourteen to twenty-five miles, and along the coast in clouds, from Newcastle seventy-five miles north, to Kiama eighty-eight miles south of Sydney: in those places they have swarmed in legions, proving a perfect pest. They are of the family Noctuidæ, and you may recollect that in my 'Wanderings in New South Wales' vol. i. p. 265, I mentioned a moth of the genus *Agrotis*, probably *A. spina*, which congregates in November, December and January, about masses of granite on the Bugong range of mountains. The moth of which this year we have such multitudes is, I consider, of the same genus as the Bugong, and is a large dark-coloured insect, very prettily marked; whether a new species I will leave you to determine: it is recognized by the colonists as a well-known visitor, but rarely in such multitudes and never to so wide an extent as during this time. Every house and public building is infested with them, clinging in swarms to the corners, behind shutters, or in any hollow space where they can congregate: this occurs to a greater extent in the suburbs than in the city. On the first morning following their arrival they occasioned great alarm and annoyance, for on opening the shutters the servants were saluted by a copious shower of these strong-winged insects, which had crowded on every part of the rooms and verandah, flying in legions in their faces with a whirring noise, and at the same time covering them with a quantity of dust or moth-feathers. During the first few days of the plague, some persons had to call in the assistance of their neighbours to help to clear away the hosts of these insects that had congregated in their dwellings. They filled the church at Kiama, and for a time prevented the performance of divine service; and how they behaved in the church at St. Leonards, on the north shore of Port Jackson, has been described by the Rev. W. B. Clarke. It is difficult to form an opinion whence the moths came: on the doors and windows being left open, the rooms were soon filled with multitudes, and what with the "dust-feathers" and a white fluid ejected by them, they stained and injured the curtains and coverings of the furniture. About dusk they might be observed flying

high and always with great rapidity, and then spreading about would alight on the flowers, always selecting the sweetest, and on these they might be seen in crowds sucking the blossoms, and so busily engaged as to be readily captured. Although generally seen about dusk, yet I observed a few days since a number of them crowding on the flowers of the orange and lemon trees early in the afternoon, and they rose in multitudes when disturbed. All I have examined are males, and although caught in various localities not a single fertile female has yet been discovered. It has been stated that a similar visitation took place in the vicinity of Sydney in 1855, but I do not recollect their swarming so generally, or to so great an extent or in such legions, as on the present occasion. In the 'Newcastle Chronicle' it is mentioned that Captain Twiss, of the brigantine 'Express,' which arrived in port on the 9th of October, reports that 'on the 7th of October, being 300 miles away from the coast of New South Wales, he observed a great number of moths in the sea; on the 8th, being moderately calm, the sea was literally covered with moths.' Captain Twiss was of opinion that they had been blown from the shore, but from observations on land they appeared to come from the sea in the teeth of a westerly gale."

The following is the account given by the Rev. W. B. Clarke, dated "St. Leonards, 10th October, 1867," and referred to in Dr. Bennett's letter:—

"On the 22nd of December, 1851, I camped on a thick bed of snow, just under the summit of the Mount Kosciusco range in the Australian Alps, at a height of between six and seven thousand feet, or more than a mile and a quarter above the sea. The only fuel we could obtain was from the belt of old withered dwarf gum scrub, that appears just at the snow line; our fire, therefore, was very small. About sundown an immense flight of moths came down from the granite peaks and nearly extinguished the fire. My attention being attracted to them by this circumstance, and my memory supplying the fact, that Dr. Bennett had, years before, described the moths that he saw on the Bugong Mountain, on the Upper Tumut River, I secured a specimen, which I find by comparison to be identical in species with the *Agrotis* that is now infesting this vicinity. It is for the sake of identification that I allude to the year 1851. On the 7th of October, 1855, St. Thomas' Church (North Shore) was visited by a great flight, which much disturbed the congregation on that day and the following Sunday, 14th October. The invaders were got rid of with great difficulty, and at some cost to the parish, on account of the injury done to the church furniture. On the 7th and 14th of October, 1866 (just eleven years afterwards) a similar visitation took place, attended by similar results; though the moths were not quite so numerous as in 1855. The moths appeared in church this year on the 14th of September, and from that date to this have gone on increasing in numbers, until several bushels have been destroyed, though, apparently, without much diminishing the army. The state of the church was such on Sunday last (6th October) from the accumulated dust (moth-feathers), and the incessant swarms that were continually flying through the building, that divine service could not be held therein. More than seven days' hard labour in endeavouring to subdue them had been spent in vain; and since then, applications of the strongest ammonia, sulphur smoke, and other contrivances used for hours, have failed to drive them away, for as fast as one swarm is partly destroyed another succeeds. There are so many openings in the building that cannot be closed, and so many lodgments outside, that no smothering contrivance has succeeded; and as the trees and ground are



full of them, the moths, if driven away for a time, muster again and return. This morning I made an attempt to reckon up the numbers grouped together on the windows, and I counted more than 80,000. In the tower and below the floor, and hidden behind the skirting, there are probably many millions. An opinion has been published, that these moths came in from the sea. A flight fully a mile in length, very thick and broad, was certainly seen on the evening of the 20th of September, travelling from the direction of the Heads along the North Shore; and another similar flight was seen at Newcastle, probably both directed by a N.E. wind, which would in the latter case have, perhaps, blown them from the projecting land about Port Stephens, and so they might have crossed the water. The sands of the sea have been known in former years to be bordered by a thick band of dead moths, doubtless blown in from the land, drowned, and washed ashore. I am told that a vessel, yesterday, twenty miles from land, was covered by them. My own observations, specially on the 22nd of December, 1851, lead me to believe that if they have migrated from a distance they have come from the west and south-west, especially as their first appearance this year was with a west wind. And it must be remembered, that previous visitations have probably left eggs enough to account for the present multitudes within less distance than that from Sydney to Mount Kosciusco."

Mr. F. Smith exhibited the moths forwarded by Dr. Bennett to Dr. Gray. They did not appear to differ from the "Bugong moth," *Agrotis spina* of Guénée. With reference to Dr. Bennett's remark that males only had been found, it may be observed that the box forwarded by him contained about an equal number of male and female specimens. Both sexes also have been described, in a paper read before the Entomological Society of New South Wales, by Mr. A. W. Scott, who applies to the insect the name of *Agrotis vastator*. The following is an extract from Mr. Scott's paper:—

"The caterpillar of this moth is fleshy, little attenuated at each extremity, subvermiform in appearance, and of a livid colour, varying much in shade, with the anterior segment furnished with a horny plate. It measures at maturity about two inches, and undergoes its transformation in the ground. The chrysalis is cylindro-conical, of a shining yellowish brown, and protected by a slight cocoon of a rough irregular ovoid form, composed of agglutinated earth. The caterpillars of several species of *Agrotis*, such as the one now under consideration, are very destructive on account of their numbers, feeding on the roots and leaves of low herbage, and hiding during the extreme heat of noon under clods of earth, stones, and other convenient places. The number of larvæ, in seasons which prove favourable for their development, almost surpasses belief. . . . A few years ago, on the Hunter River, I carefully examined a paddock of twenty-five acres, under oats for hay, which was much infested by the caterpillars of this species, and found that nearly every stalk had at least one caterpillar on it; numbers had two, many three. Taking the plants at twenty to the square foot, and each with only one caterpillar, the result would be 21,780,000 of these insects; and supposing that all these lived to become moths, each pair producing by the end of the season a progeny of 80,000, the total produce for the twenty-five acres would amount to 871,200,000,000. What, then, calculating under the same conditions, would be the number of the caterpillars which were at the time I allude to ravaging whole districts? A long line of figures almost unpronounceable.

"Allowing for every reasonable loss caused by weather not unusually severe, accident, or their numerous enemies, still there would remain quite sufficient to produce those vast numbers of moths, collected together from a wide range of country, and seen clustering in caves, under ledges of rocks, in churches, houses, barns, in every nook and cranny where their gregarious habits lead them, seeking shelter from the glare of day. I, therefore, think that this natural increase, aided by favourable weather, is quite sufficient to account for the swarms of moths recently seen in many localities, without having recourse to improbable theories. All moths are, in their primary stages, purely terrestrial, and cannot 'come in from the sea.' They cannot be born there, neither are their wings adapted for so long a flight as to cross the ocean from any point of land to the eastward of our coast, particularly 'in the teeth of westerly winds.' Indeed, many swarms of insects, besides the Lepidoptera, are known to be blown from the land, while a few others wilfully fly seaward under some unaccountable, almost insane, desire; but all these inevitably perish. I would suggest that the moths seen by vessels at sea were either endeavouring vainly to emigrate, or, what is *far more probable*, were driven away from the land by the prevalent westerly winds, and perished by thousands in the ocean; those seen returning to the shore were the fortunate few that had escaped before being carried too far to sea. I remember, some years ago, walking along the sands for about five miles between Newcastle and Redhead, and I observed an almost continuous undulating line of dead bodies, several deep, of these moths, marking the wash of high water along the whole of this length of beach, interrupted only by the rocky headlands; and probably this exhibition of the fate of these insects in such vast numbers was continued for a considerable distance on either hand.

"Were it not for the wholesale destruction of these vast assemblages of insect pests, caused by the violence of winds—by the fall of rain for several days successively—by sudden changes of temperature—and by the host of enemies, following in their wake, consisting of insectivorous birds and reptiles, and the numerous family of the Ichneumonidæ, I fear all the endeavours of man by artificial means to eradicate them would be baffled. The abundant food furnished by the roots and leaves of the various weeds and grasses growing over a vast extent of waste lands, will always ensure too ample a supply of such noxious creatures. We can, however, check in some degree the injury to our crops, and thus moderate the evil, by ploughing and harrowing the fallow lands, thus cutting off the immediate supply of food,—by passing the roller again and again over the growing crops when practicable,—and by encouraging, not molesting, the many species of birds that visit the fields in flocks on such occasions. I have seen crows, large brown hawks, magpies, cranes, spur-winged plovers, and a host of smaller birds, enjoying during the day ample meals furnished by these caterpillars, and had a great difficulty in preventing the overseer from driving them away, 'because,' he said 'they eat the lucerne.' The large family of ichneumons is also a great ally of man in the war of extermination, for they pierce the body of the living caterpillars, depositing their eggs within them, and thus cause a slow but certain death before the larvæ can attain to the perfect or winged state, and on this account they ought to be encouraged.

"In January and March of the year 1865, my friend Mr. Robert Vyner visited the Bougong Mountains, accompanied in the first instance by an aboriginal 'Old Wellington,' and in the other by Mr. Sharp, of Adelong, Old Wellington, and

another black fellow; both of these latter well acquainted with the habits of the moth, called by them 'Boogong' and 'Gnarlong' indiscriminately. The tops of these mountains are composed of granite, and present a series of lofty peaks, and it was up one of these, named by the natives 'Numoiadongo,' he and his companions toiled for nearly six hours before attaining the summit; so steep and rugged was the path that even the wild cattle never attempted to ascend to these heights. The moths were found in vast assemblages, sheltered within the deep fissures and between the huge masses of rocks which here form recesses, and might almost be considered as 'caves.' On both sides of the chasms the face of the stone was literally covered with these insects, packed closely side by side, overhead and under, presenting a dark surface of a scale-like pattern—each moth, however, was resting firmly by its feet on the rock, and not on the back of others, as in a swarm of bees. So numerous were these moths that six bushels of them could easily have been gathered by the party at this one peak; and so abundant were the remains of the former occupants that a stick was thrust into the *débris* on the floor to a depth of four feet. Mr. Vyner tells me that on this occasion he ate, properly cooked by Old Wellington, about a quart of the moths, and found them exceedingly nice and sweet, with a flavour of walnut—so much so that he desires to have 'another feed.' His clothes, by the moths dashing against them on being disturbed, were covered with honey, and smelt strongly of it for several days. At the time these multitudes assembled, the tea-tree and the small stunted-looking white gums were in full blossom, no doubt yielding up their honied treasures to these nocturnal depredators, whose flight, when issuing from their hiding-places to the feeding-grounds, was graphically described by Old Wellington, 'very much like wind, or flock of sheep.' The Tumut blacks report that the moths do not congregate on the high peaks in the spring time, but they first locate the lower mountains, feeding on the blossoms, which appear there earlier, and then work their way up to the higher peaks, where the plants are later in bloom.

"The Bougong moths are collected and prepared for food by the aborigines in this wise:—A blanket or sheet of bark is spread on the floor; the moths, on being disturbed with a stick, fall down, are gathered up before they have time to crawl or fly away, and thrust into a bag. To cook them, a hole is made on a sandy spot, and a smart fire lit on it until the sand is thoroughly heated, when all portions left of the glowing coal are carefully picked out for fear of scorching the bodies of the insects (as in such a case a violent storm would inevitably arise, according to their superstitious notions). The moths are now poured out of the bag, stirred about in the hot ashes for a short time, and then placed upon a sheet of bark until cold. The next process is to sift them carefully in a net, by which action the heads fall through, and thus, the wings and legs having been previously singed off, the bodies are obtained properly prepared. In this state they are generally eaten, but sometimes they are ground into a paste by the use of a smooth stone and hollow piece of bark, and made into cakes.

"In this locality were seen many of these holes, having been formed years ago for a similar purpose, by the then numerous blacks.

"Mr. Vyner also mentions that, at the period of his visit to this peak, he saw hundreds of crows and magpies feeding upon these moths, and the foot-marks and other tracks of native dogs and tiger cats were abundant, leading direct to the fissures of the rocks, and although he did not see these animals, he adds, 'I am certain from their traces that they must feed upon the moths.'"

(See also Proc. Ent. Soc. 1839, p. xxiv.; 1840, p. xvi.; 1865, p. cxxix.)



Mr. F. Smith exhibited specimens of the Australian form of *Pyrameis Cardui*, sent by Dr. Bennett to Dr. Gray, "taken in November, 1860, when off Cape Otway, on the Australian Coast; multitudes of them were about the P. and O. Company's steamer 'Jeddo,' alighting in numbers on board, and were captured."

Prof. Westwood remarked that the butterfly in question had been recently separated from *Pyrameis Cardui* by Prof. M'Coy, and described under a new name. (See Proc. Ent. Soc. 1867, p. lxxxvii.)

Mr. Trimen exhibited a specimen of *Apatura Ionia*, a rare species from Asia Minor, placed by some authors in the genus *Vanessa*, by others in *Pyrameis*.

The Hon. T. De Grey exhibited *Hypercallia Christierninana* (see Proc. Ent. Soc. 1867, p. xcii), captured between Shoreham and Sevenoaks, in the locality where the insect was a few years ago taken by Mr. W. Farren. Also *Acidalia rubricata* and *Opostega reliquella*, Zell., both taken in Norfolk in 1867; see Ent. Ann. 1868, p. 131; with reference to Mr. Stainton's remarks there published, on the swarming of *Opostega salaciella*, Mr. De Grey added that he also had found that insect in such considerable numbers together, that the term "swarming" was not inappropriate.

Mr. Hewitson communicated a note on the date of publication of Dr. Felder's second volume of the 'Reise der Novara,' a question of some importance with reference to the priority of nomenclature of numerous species of butterflies (see Zool. Record, vol. iii. p. 433, and Trans. Ent. Soc. 3rd series, vol. v. p. 471). Mr. Hewitson made several applications for the volume, either with coloured or uncoloured plates, at the beginning of 1867, through Messrs. Williams and Norgate, who informed him that they were unable to procure it from the bookseller in Vienna. Nevertheless the work (*i.e.* the text, with uncoloured plates) was really published at the latter end of 1865. Dr. Felder had written to him to the effect that the 'Reise der Novara' was produced by and at the expense of the Imperial Academy of Science, and was issued by the Academy with uncoloured plates; coloured plates were not kept ready for sale, and copies were only coloured to order, which fact was stated on the cover of the volume: if any one had applied at the Academy, or to the bookseller of the Academy, at the latter end of 1865, for the second volume with uncoloured plates, he could have been supplied with 400 copies.

The President also read a letter to the same effect from Dr. Felder, who, in corroboration of the above statements, enclosed a letter from Herr Carl Gerold, the bookseller of the Imperial Academy, explaining that the reason why the work had not been supplied when ordered by Mr. Hewitson was, that the only order he had received was for a coloured copy; he had never received any order from England for an uncoloured copy.

Sir John Lubbock communicated a letter from Dr. Signoret, dated Paris, January 4, 1868, of which the following is a translation:—

"At the Meetings of the 5th and 19th of November, 1866 (Proc. Ent. Soc. 1866, pp. xxxii. xxxvi.), mention was made of the *Aphis* which lives in the galls of the elm, and it was spoken of as an object almost unknown at the present day, Geoffroy, Réaumur, De Geer and Et. Geoffroy (1764) being the only authors cited as having treated of this insect. It would be unfortunate for Hemipterology if that branch of Natural History had since that time fallen into oblivion, but it is not so, and to begin with I have only to cite Mr. Francis Walker, who speaks of it in his List of

Homopterous Insects, p. 1049, and who cites some fifteen authors, all of whom describe it more or less at length; to whom I may add Blot (Mem. Soc. Linn. de Caen, 1824), Hartig (Germar's Zeitsch. 1841), C. L. Koch (Die Pflanzenläuse, 1857), and more recently, Passerini (Aphididæ Italicæ, Archiv. Zool. de Modène, 1863).

"At the Meeting of the 5th of November (Proc. Ent. Soc. 1866, p. xxxii.) Mr. Pascoe exhibited two females of a Coccus living under the leaves of the Eucalyptus. Mr. Schrader has published an excellent paper with three plates in the first volume of the Transactions of the Entomological Society of New South Wales, 1863, where Mr. Pascoe will certainly find his species of Coccus.

"As I have occupied myself for several years with Cochineal insects in general, and am endeavouring to bring together all the existing material on that subject, I should receive with pleasure any papers, observations or insects which might be communicated to me. As regards the insects, I should especially like to have the males, which are extremely difficult to meet with, and I would ask those who find any to be kind enough to place them in tubes with some weak spirit of wine, for when they are dried it is impossible to make drawings of them. I should also be glad of information respecting the plants on which they live, which also may be inserted in the tubes."

Mr. F. Smith thought that Dr. Signoret had misunderstood his remarks about the galls of the elm; the fact was that the galls in question had never been noticed in this country before 1866. Mr. M'Lachlan added that he had referred to Geoffroy, Réaumur and De Geer, not as being the only authors who had described the gall, but merely to show that, though new to this country, it had in fact been well known on the Continent for more than a century.

Mr. F. Smith exhibited a new species of *Oryssus*, from the Gold Coast, the body of which was of a splendid metallic deep emerald-green, a somewhat uncommon occurrence among the Tenthredinidæ. Also specimens of Brazilian Hymenoptera and Diptera, whose economy was described in the paper mentioned below.

The Secretary exhibited a spider sent by Lord Cawdor, from Stackpole Court, Pembroke, which was pronounced by Mr. Blackwall to be a female of *Pholcus phalangioides* (see 'Spiders of Great Britain and Ireland,' part 2, p. 208), a species which frequents the interior of old buildings in the South of England: having been preserved in the dry state, the abdomen had shrunk greatly, and this circumstance had affected the colour. Mr. Blackwall added that in the spring of 1867 he received from India a species of *Pholcus*, described as *P. Lyoni* (Ann. and Mag. N. H. ser. 3, vol. xl. xix. p. 392), one specimen of which "presented the extraordinary physiological fact of the union of the two sexes in the same individual." In this gynandromorphous spider, the left side exhibited male and the right side female characters.

#### *Papers read.*

Mr. F. Smith read "Observations on the Economy of Brazilian Insects, chiefly Hymenoptera, from the Notes of Mr. Peckolt, of Cantagallo."

Mr. M'Lachlan read "A Monograph of the British Neuroptera-Planipennia," enumerating forty-nine species as inhabitants of the British Isles.—J. W. D.

**March 1.—THE BIRDSNESTING SEASON BEGINS.**

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## **BIRDSNESTING :**

**BEING A COMPLETE DESCRIPTION OF THE NESTS AND EGGS OF  
BIRDS WHICH BREED IN GREAT BRITAIN AND IRELAND**

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6. The 'Letters of Rusticus.'
7. Observations, emendations and additions, by Mr. Bond of London, and Mr. Doubleday of Epping. With the view of making this work as complete as possible, these two gentlemen, our best British ornithologists, have gone over the list, species by species, and in a manner deserving the warmest and most sincere thanks of all lovers of birds, have corrected whatever they thought erroneous, erased whatever they considered doubtful, and added whatever they considered necessary to make the list complete; so that, as now offered to the public, it must take rank as the most complete descriptive list ever produced on any branch of British Natural History.

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## EDWARD NEWMAN'S ILLUSTRATED NATURAL HISTORY OF BRITISH MOTHS. PRICE SIXPENCE MONTHLY.

No. 15, published on the 1st of March, contains descriptions and life-size figures of the following Moths:—*Notodonta camolina*, *N. cucullina*, *N. carmelita*, *N. bicolor*, *N. dictæa*, *N. dictæoides*, *N. dromedarius* 2, *N. trilophus*, *N. ziczac* 2, *N. trepida*, *N. dodonæa*, *N. chaonia*, *Diloba cæruleocephala*, *Gonophora detersa*, *Thyatira batis*, *Cymatophora duplaris*, *C. fluctuosa* and *C. diluta* 2. Minute descriptions of the larvæ and the economy are given under each.

William Tweedie, 337 Strand.

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For 1867.

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London: Edward Newman, 9, Devonshire Street, Bishopsgate.

LONDON: EDWARD NEWMAN, PRINTER, 9, DEVONSHIRE STREET, BISHOPSGATE, N.E.